TITAN® Double-wall Underground Tanks

Innovative Tank Technology!

Highland Tank®

Outperforms All Other Protective Coatings . . .

TITAN®

Tanks for the 21st Century and beyond!

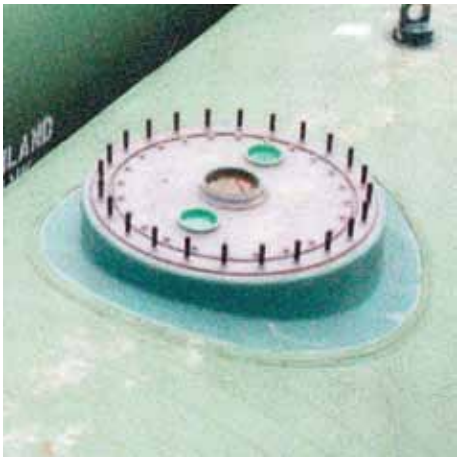
The TITAN® is the most technologically advanced underground storage tank available anywhere in the world! This recent breakthrough in underground storage tank protection involves bonding, at every opening, a high molecular weight (HMW) polymer outer tank to a steel inner tank using high heat and pressure. The result is an extremely tough double-wall tank.

TITAN®'s innovative enhancements offer secondary containment and damage resistance along with reduced installation costs. Both the primary and secondary tank walls are compatible with all motor fuels and their ethanol, methanol and MTBE additives

Striker plates are provided under each opening for added protection. Each TITAN® is engineered to allow for sixty inches of overburden. The outer tank made of rigid HMW polymer surpasses the performance standards of Underwriters Laboratories UL-1746. Titan tanks are for the storage of unheated product only. The temperature of any tank component or contents cannot exceed 100º F. For high-temperature storage applications, we recommend using the Highland HotShot Heated Product Storage Tank.

Features

- ***Complete Secondary Containment***
- ***Virtually Damage Proof Exterior***
- ***Low Installation Cost***
- ***30 Year Limited Warranty***
- ***Superior Strength***
- ***Single or Multiple Compartments***
- ***500 -29,800 gallon capacities***

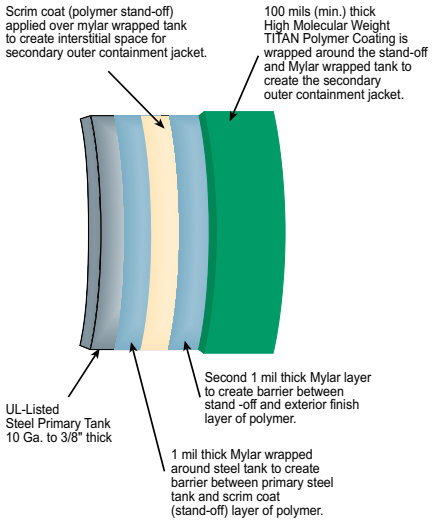


TITAN® tanks can be fitted with manholes for access into the tank.

The secondary containment tank wall of High Molecular Weight Polymer is extruded and applied hot, under pressure.

Steel Strength/Polyurethane Protection

TITAN® defines “state-of-the-art” in underground storage tanks by using the patented fusion bond method of sealing tough, space-age polymer to the steel tank around all fittings and manways. A fiberglass veil and mylar wrap provide separation of tank and polymer everywhere else creating the secondary tank containment.



Structurally Superior
The primary tank is made of steel. No other tank fabricating material can match the structural strength and product compatibility of steel. Built to UL-58 standards

Technically Advanced
The TITAN® tank employs a rigid, HMW polymer in the most advanced application method in the industry. This innovation, using sound engineering principles and quality control procedures, meets the approval of Underwriters Laboratories.

Secondarily Contained
TITAN® assures secondary containment with its 100 mil (min.) thick HMW polymer outer tank. UL-1746 interstitial communication performance tests assure that each TITAN® tank can alert its owner of a problem in as little as 5 minutes.

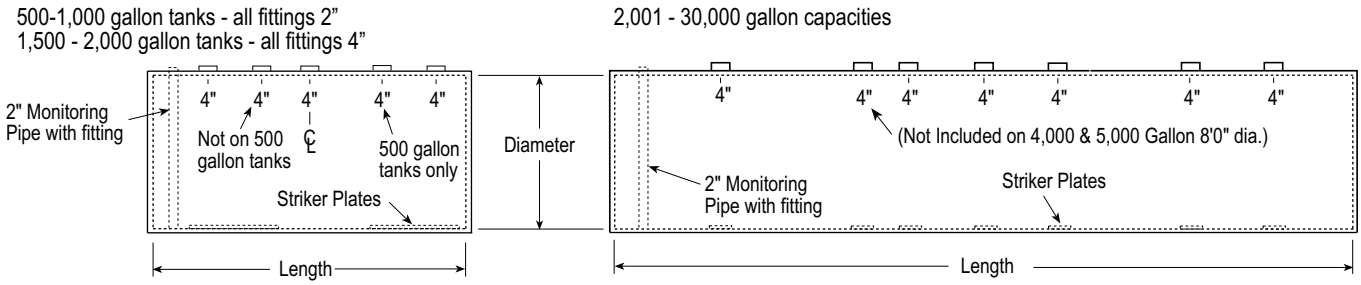
Readily Available
TITAN® tanks are available now! Highland fabricates TITAN® tanks at multiple locations making them available for delivery to meet your installation schedule.

Cost Effective
Factory-activated vacuum tightness test assures inner and outer tank integrity at delivery eliminating site tightness test by installers. At 19% shorter than domed-end tanks, the TITAN® requires less excavation and backfill. Single and double bulk-headed compartments can further reduce install-ation, insurance, monitoring and maintenance costs.

Competitively Priced
The TITAN® is priced to sell! Highland Tank, in the tank business for over fifty years, guarantees “Service, Quality and Delivery at Competitive Prices”.

Nominal Tank Capacity Gallons	Tank Dimensions Diameter	Length
500 - 10 ga.	4’0”	5’5”
500 - 7 ga.	4’0”	5’5”
1,000 - 10 ga.	4’0”	10’9”
1,000 - 7 ga.	4’0”	10’9”
1,000 - 7 ga.	5’4”	6’0”
1,500	5’4”	9’0”
2,000	5’4”	12’0”
2,500	5’4”	15’0”
3,000	5’4”	18’0”
4,000	5’4”	24’0”
4,000	6’0”	19’0”
4,000	8’0”	10’8”
5,000	6’0”	23’10”
5,000	8’0”	13’4”
6,000	6’0”	28’8”
6,000	8’0”	16’0”
8,000	10’0”	14’0”
8,000	8’0”	21’4”
10,000	10’0”	17’0”
10,000	8’0”	26’8”
12,000	10’0”	20’6”
12,000	8’0”	32’0”
15,000	10’0”	25’6”
15,000	8’0”	40’0”
20,000	10’0”	34’0”
20,000	10’6”	31’0”
25,000	10’6”	38’9”
29,800	10’6”	46’0”

Construction Details and Specifications



Recommended Guide Specification

The following items are the critical elements that should be included in the Mechanical (HVAC) Specifications for TITAN® Underground Storage Tanks. If you have a separate section for the installation of storage tanks, utilization of paragraphs 9-16 could be incorporated in the installation section.

Furnish and install a _____ gallon underground steel storage tank, _____ inches in diameter by _____ inches long with the TITAN® corrosion control and secondary containment system as manufactured by Highland Tank. The tank shall be built in accordance with UL-58, UL-1746, and TITAN® specifications. The tank will have:

a) (__) 4" dia., and (__) 2" dia. threaded NPT fittings as located on drawing.
b) Striker plates required under each opening.
c) TITAN® Corrosion Control System.
d) TITAN® HMW Polymer Secondary Containment System
e) _____ hold-down straps for TITAN® tanks. Strap package shall consist of (select one):
- Polyester strap for use with full concrete pad, including turnbuckle, clamps, and galvanized wire cable per strap;
- Polyester strap for use with deadman.
- Standard Steel with (2) turnbuckles per strap;
- Steel Safety with (2) angle clips and (1) midpoint threaded adjustment rod;
- Steel Dead-man (no turnbuckle, clamps, or wire cable included)

The secondary containment tank wall shall be made of High Molecular Weight (HMW) Polymer extruded and applied at the tank factory.

Both the primary storage tanks and secondary containment jacket shall be compatible with gasoline, gasahol, ethanol, methanol, jet fuel, av-gas, kerosene, diesel fuel, and motor oil at ambient underground temperature or fuel oil stored at temperatures not to exceed 100˚ F.

The primary storage tank shall be contained in a 360˚, air-pressure testable and unbreakable jacket, bonded together and sealed off at the fittings.

There shall be an interstital space between the primary and secondary containment jacket to allow 100% fluid migration between the walls under maximum load conditions.

The corrosion control system shall be in strict accordance with TITAN® specifications as applied by a licensee of TITAN® Inc. and shall have a limited 30-year warranty against failure due to exterior corrosion and internal corrosion when used with petroleum products or alcohol. Tank shall bear UL-1746, and TITAN® labels.

The tank excavation shall be free from material that may cause damage to the tank. Care shall be taken during installation that foreign matter is not introduced into excavation or backfill. The bottom of the excavation shall be covered with clean sand or gravel to depth of 12" suitably graded and leveled.

Special Note: If tank is to be placed on a concrete pad for anchoring purposes, the tank must not be placed directly on the pad. A layer of fine or pea gravel, sand or #8 crushed stone (#8 coarse aggregate ASTM D-448) at least 6" deep must be spread evenly over the dimensions of the pad to separate the tank from the pad. If installation area is in a tidal area, the tank "bedding" material should be fine gravel or pea gravel rather than sand.

Tanks shall be shipped, delivered, installed and 3/4 backfilled while maintaining a constant vacuum (minimum 12 inches of mercury vacuum) on the interstitial space to assure integrity of both the primary storage tank and secondary containment tank wall simultaneously.

Site Test

Should a site integrity test be required, the vacuum may be released at the site and a 5 PSI air pressure test may be performed to the primary storage tank and an air vacuum only (maximum 12 inches of mercury) test may be performed on the secondary tank.

Before placing the tank in the excavation, all dirt clods and similar foreign matter shall be cleaned from the tank.

Equipment to lift the tank shall be of adequate size to lift and lower the tank without dragging and dropping to ensure no damage to the tank or the coating. Tanks shall be carefully lifted and lowered by use of cables or chains of adequate length (not less than 30˚ including angle) attached to the lifting lugs provided. A spreader bar should be used where necessary. Under no circumstances are chains or slings around the tank shell permitted.

Special Note: Hold Down Straps—Special care should be exercised when installing hold down straps. Ensure that the straps are separated from the tanks by separating pads made of an inert, insulation dielectric material. The separating pad should be at least 2" wider than the hold down strap width and must be carefully placed anywhere on the tank where hold down straps would come into direct contact with the tank shell.

Backfill consisting of sand, #8 crushed stone (#8 crushed aggregate ASTM D-448) or fine gravel, shall be placed along bottom side of tank by shoveling and tamping to ensure the tank is fully and evenly supported around bottom quadrant. The backfill shall be deposited carefully around tank and to a minimum depth (12" - PEI/RP100-97) over tank to avoid damage to the secondary containment jacket.

Tank shall be manufactured by Highland Tank, Stoystown, PA; Manheim, PA; Watervliet, NY; or Greensboro, NC.

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